

# EXHIBIT 3



US011100184B2

(12) **United States Patent**  
**Osann, Jr.**

(10) **Patent No.:** **US 11,100,184 B2**

(45) **Date of Patent:** **\*Aug. 24, 2021**

(54) **INTERNET SEARCH RESULTS  
ANNOTATION, FILTERING, AND  
ADVERTISING WITH RESPECT TO  
SEARCH TERM ELEMENTS**

(58) **Field of Classification Search**

CPC ..... G06F 16/9535; G06F 16/9038; G06F  
16/9577; G06F 16/338; G06F 16/248;  
G06Q 30/0239; G06Q 30/0256; G06Q  
30/0277

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See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

10,324,995 B2 \* 6/2019 Osann, Jr. .... G06F 16/9535  
10,437,900 B2 \* 10/2019 Osann, Jr. .... G06F 16/9577  
(Continued)

This patent is subject to a terminal dis-  
claimer.

*Primary Examiner* — Azam M Cheema

(21) Appl. No.: **17/114,305**

(22) Filed: **Dec. 7, 2020**

(65) **Prior Publication Data**

US 2021/0089601 A1 Mar. 25, 2021

**Related U.S. Application Data**

(63) Continuation of application No. 16/790,057, filed on  
Feb. 13, 2020, now Pat. No. 10,867,001, which is a  
(Continued)

(51) **Int. Cl.**

**G06F 7/00** (2006.01)

**G06F 16/9535** (2019.01)

**G06F 16/248** (2019.01)

**G06F 16/338** (2019.01)

**G06F 16/9038** (2019.01)

**G06F 16/957** (2019.01)

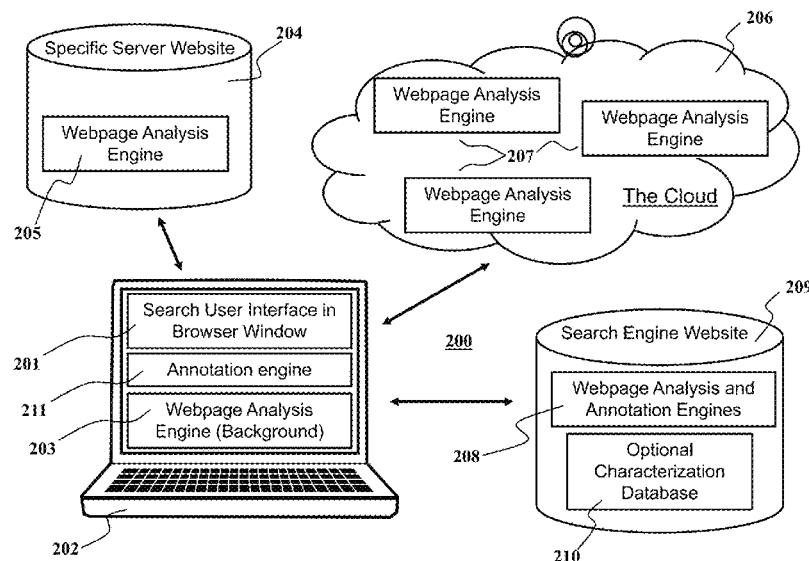
(52) **U.S. Cl.**

CPC ..... **G06F 16/9535** (2019.01); **G06F 16/248**  
(2019.01); **G06F 16/338** (2019.01); **G06F**  
**16/9038** (2019.01); **G06F 16/9577** (2019.01)

(57) **ABSTRACT**

Internet searches sometimes provide search results referenc-  
ing webpages that do not contain all search term elements  
submitted by a user. The user may then click on such Internet  
search results where referenced webpages, and/or their  
descendants, do not contain important search term elements.  
Also, advertisements are sometimes placed on search results  
webpages that relate to the user's search term elements, even  
though some of those search terms are missing in referenced  
and/or descendant webpages. The present invention is  
directed to: annotating Internet search results to indicate  
missing search term elements on referenced and descendant  
webpages; optionally filtering out search results referencing  
webpages with missing terms; and showing advertisements  
related to search term elements. When shown, annotations  
warn the user to avoid clicking on an Internet search result  
where the user's search term elements are not present on  
referenced and/or descendant webpages, thereby preventing  
wasted time and speeding the search process.

**22 Claims, 11 Drawing Sheets**



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**Related U.S. Application Data**

continuation of application No. 16/553,900, filed on Aug. 28, 2019, now Pat. No. 10,585,959, which is a continuation of application No. 16/199,192, filed on Nov. 25, 2018, now Pat. No. 10,437,900, which is a continuation of application No. 15/383,907, filed on Dec. 19, 2016, now Pat. No. 10,140,374, which is a continuation of application No. 14/820,433, filed on Aug. 6, 2015, now Pat. No. 9,529,920, which is a continuation of application No. 13/163,614, filed on Jun. 17, 2011, now Pat. No. 9,104,765.

(56) **References Cited**

U.S. PATENT DOCUMENTS

10,867,001	B2 *	12/2020	Osann, Jr. ....	G06F 16/9038
2008/0010269	A1 *	1/2008	Parikh .....	G06F 16/334
2009/0019036	A1 *	1/2009	Roy .....	G06F 16/337
2009/0150375	A1 *	6/2009	Mityagin .....	G06F 16/951
2010/0262568	A1 *	10/2010	Schwaighofer .....	G06N 20/00
				706/12

\* cited by examiner

Typical Search Engine Results in Browser Window

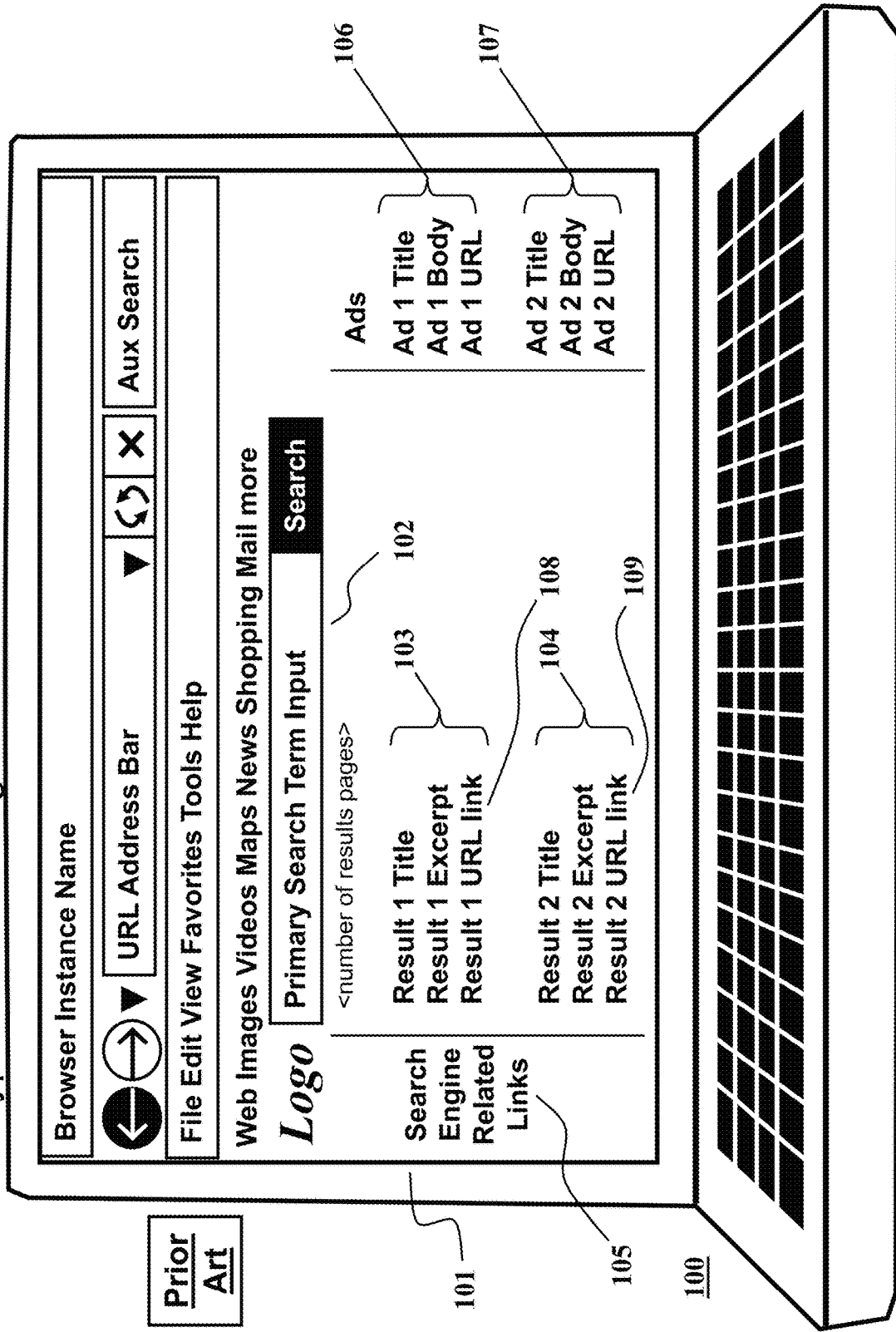


Figure 1

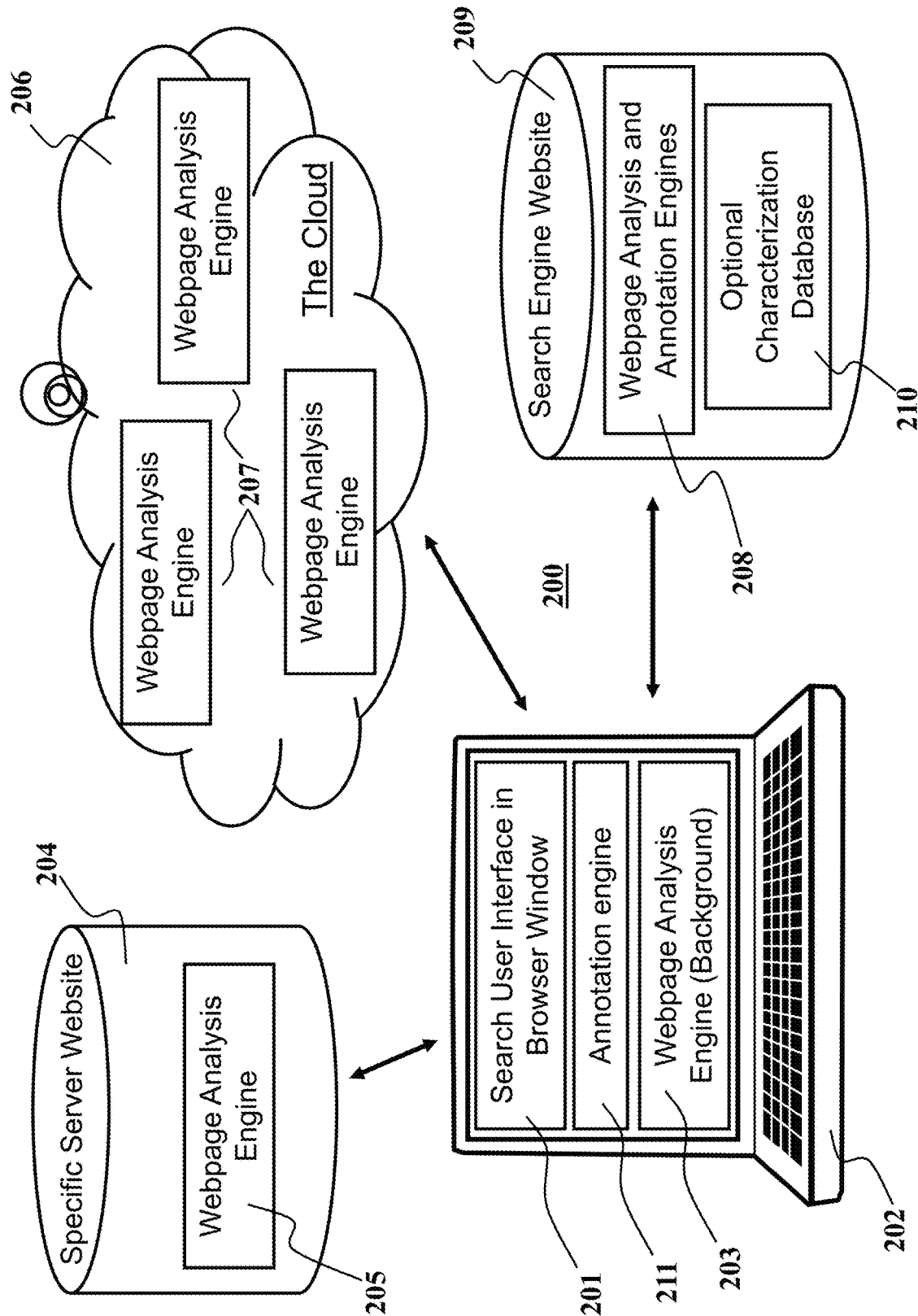


Figure 2

Annotated Search Engine Results in Browser Window

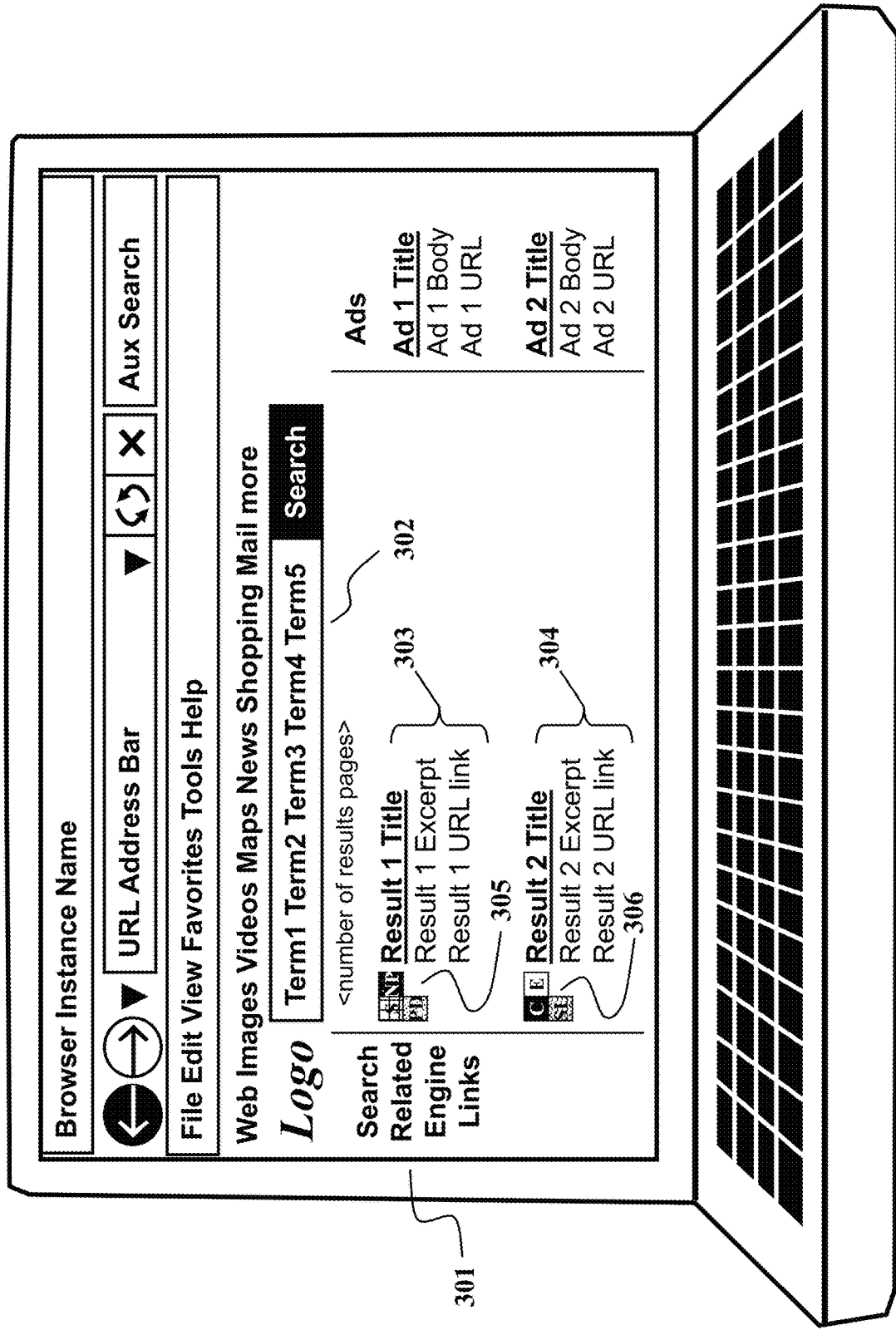


Figure 3

Annotated Search Engine Results in Browser Window

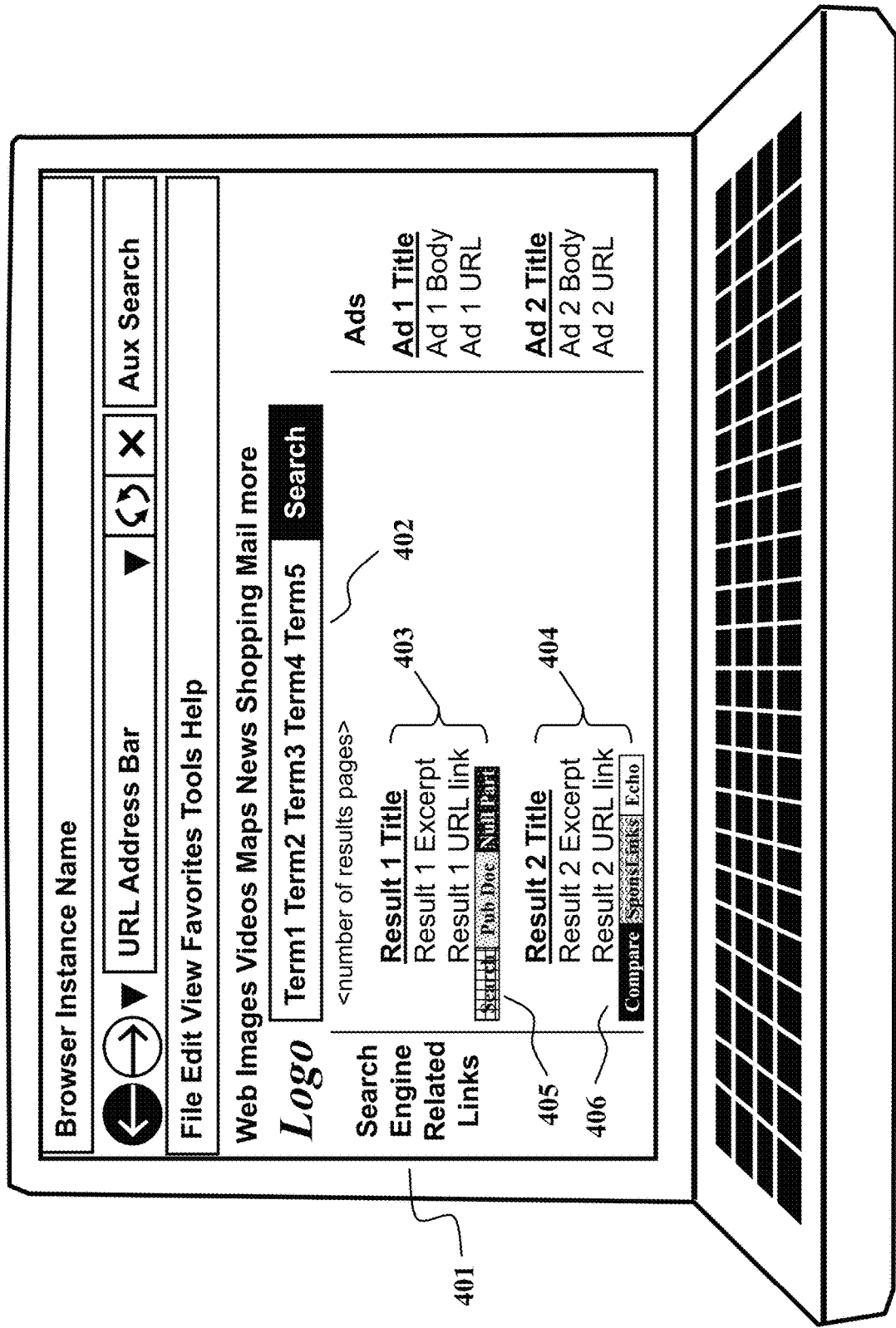


Figure 4

Annotated Search Engine Results in Browser Window

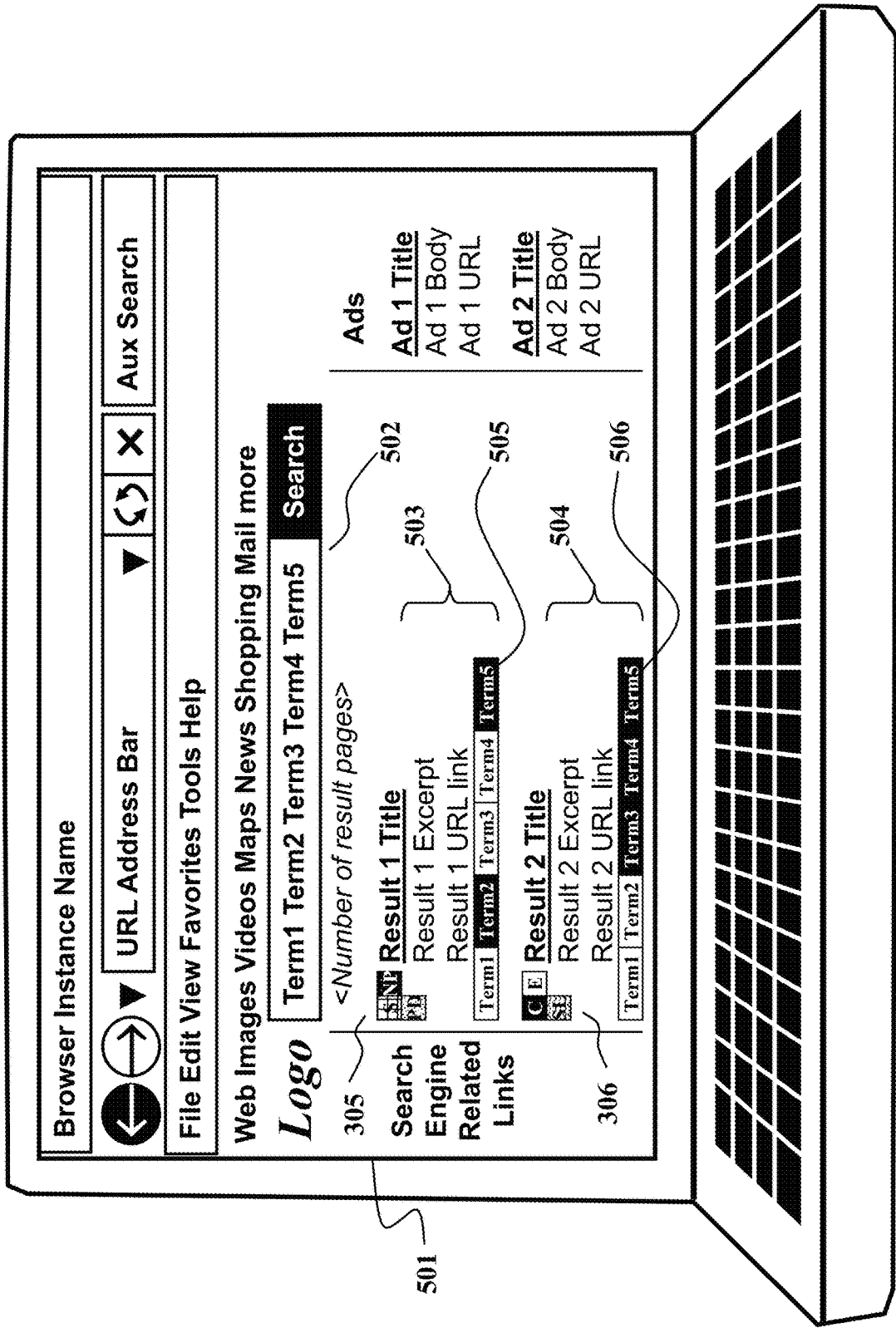


Figure 5

Annotated Search Engine Results in Browser Window

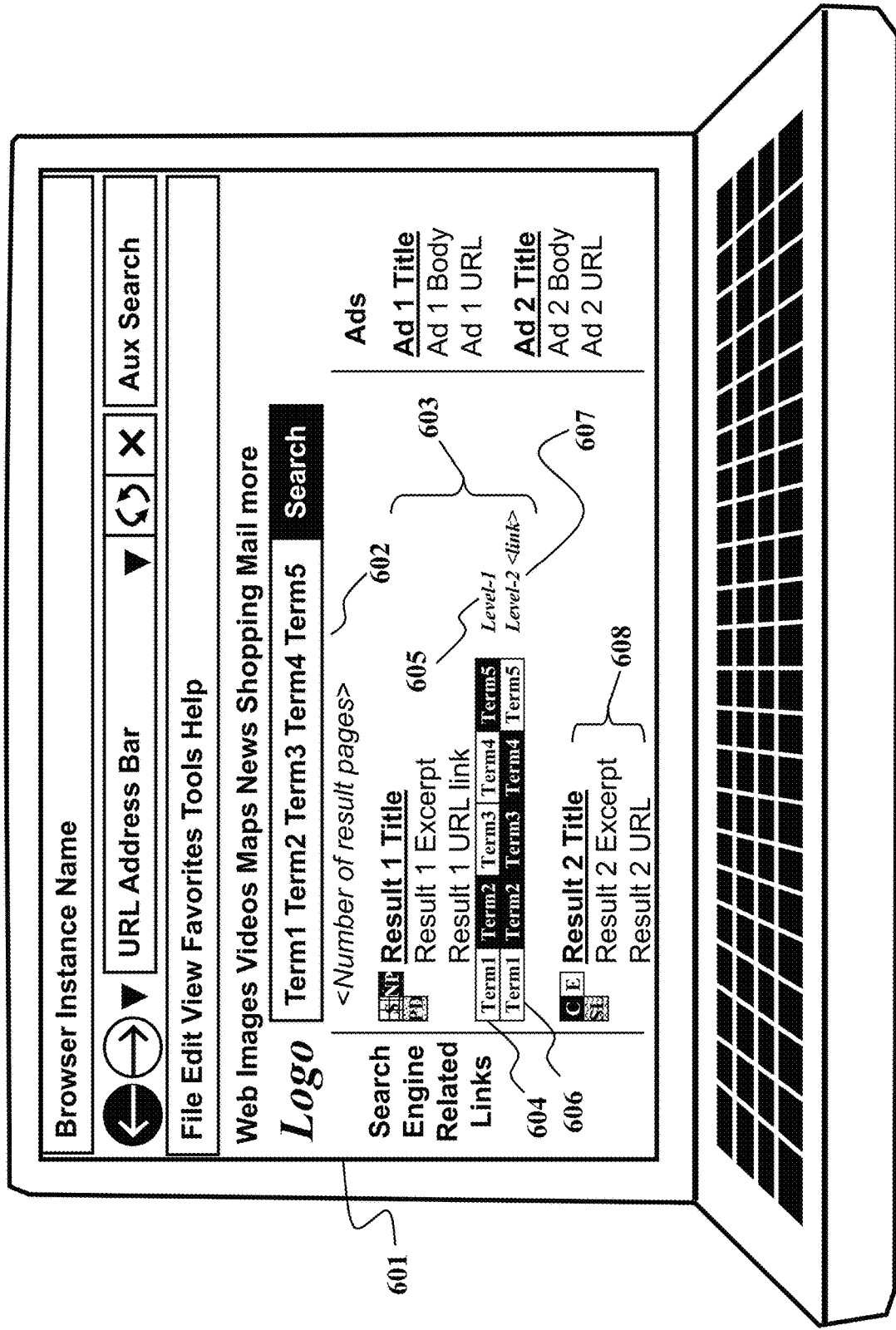


Figure 6

## Annotated Search Engine Results in Browser Window

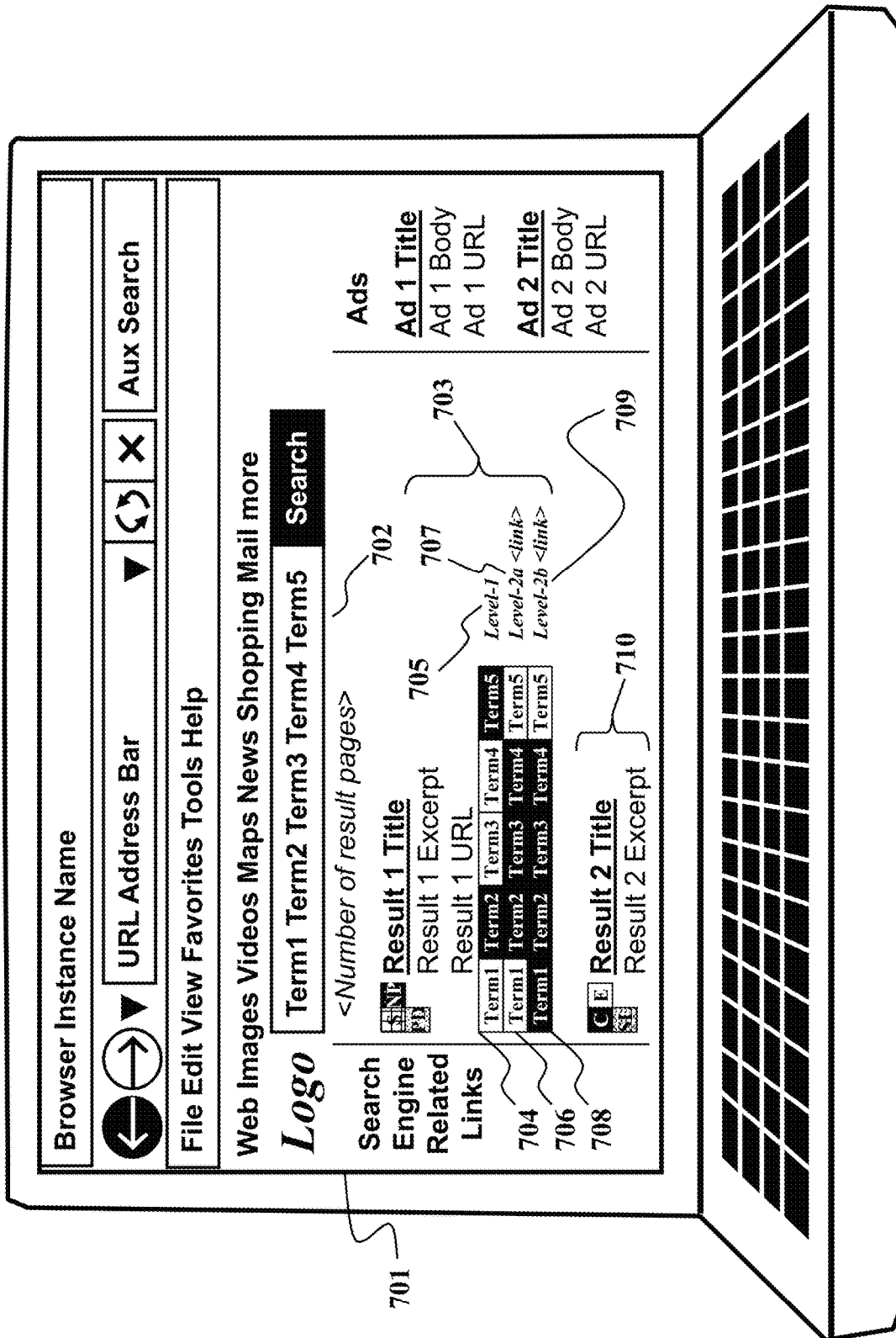
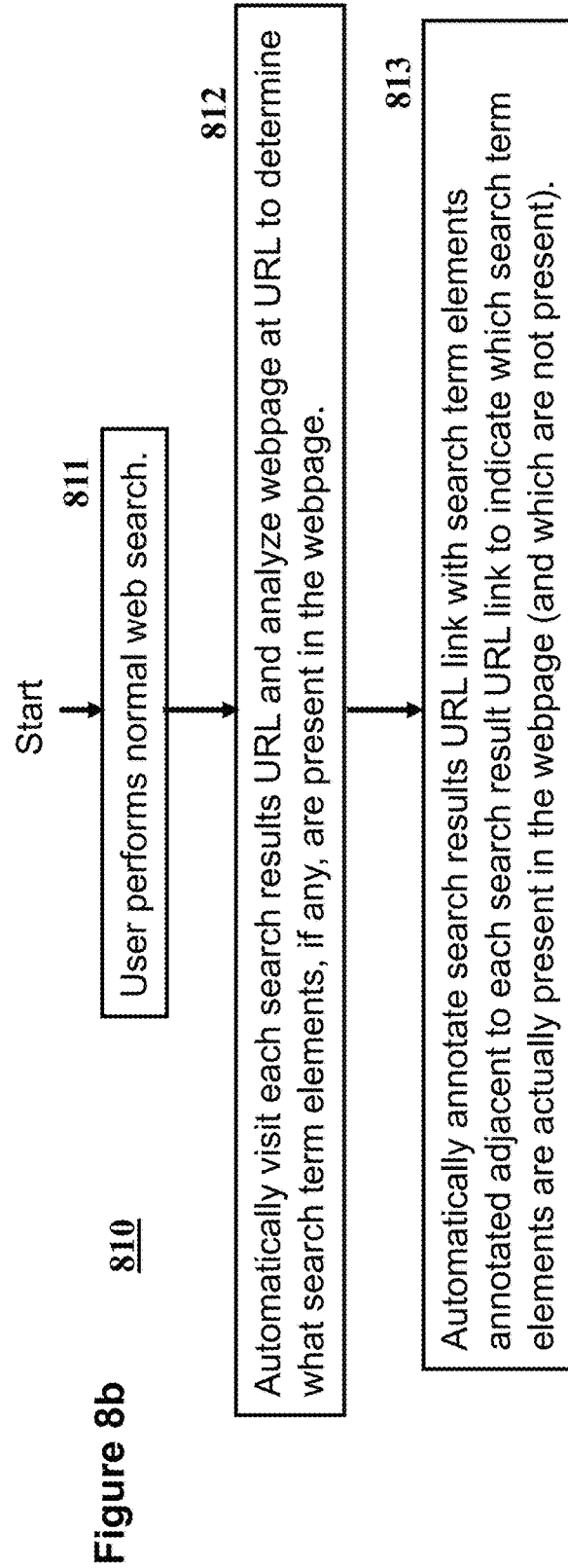
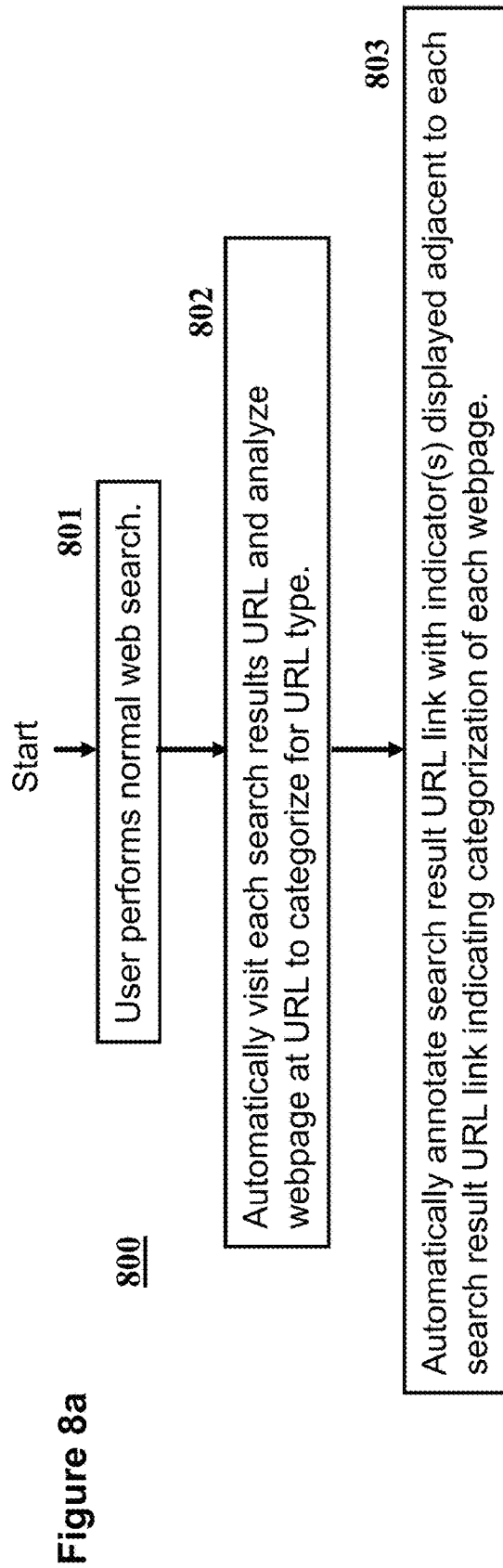
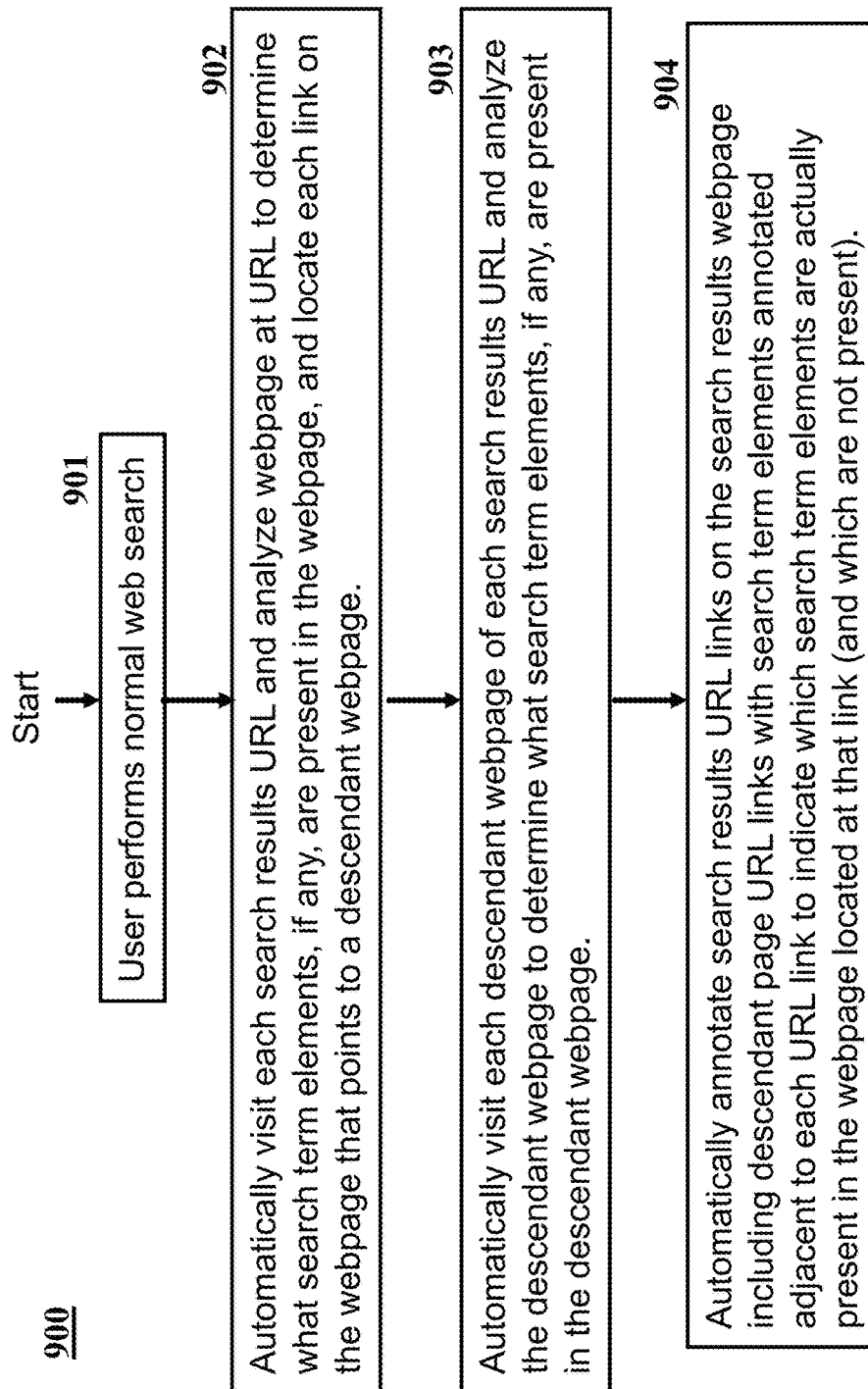


Figure 7



**Figure 9**

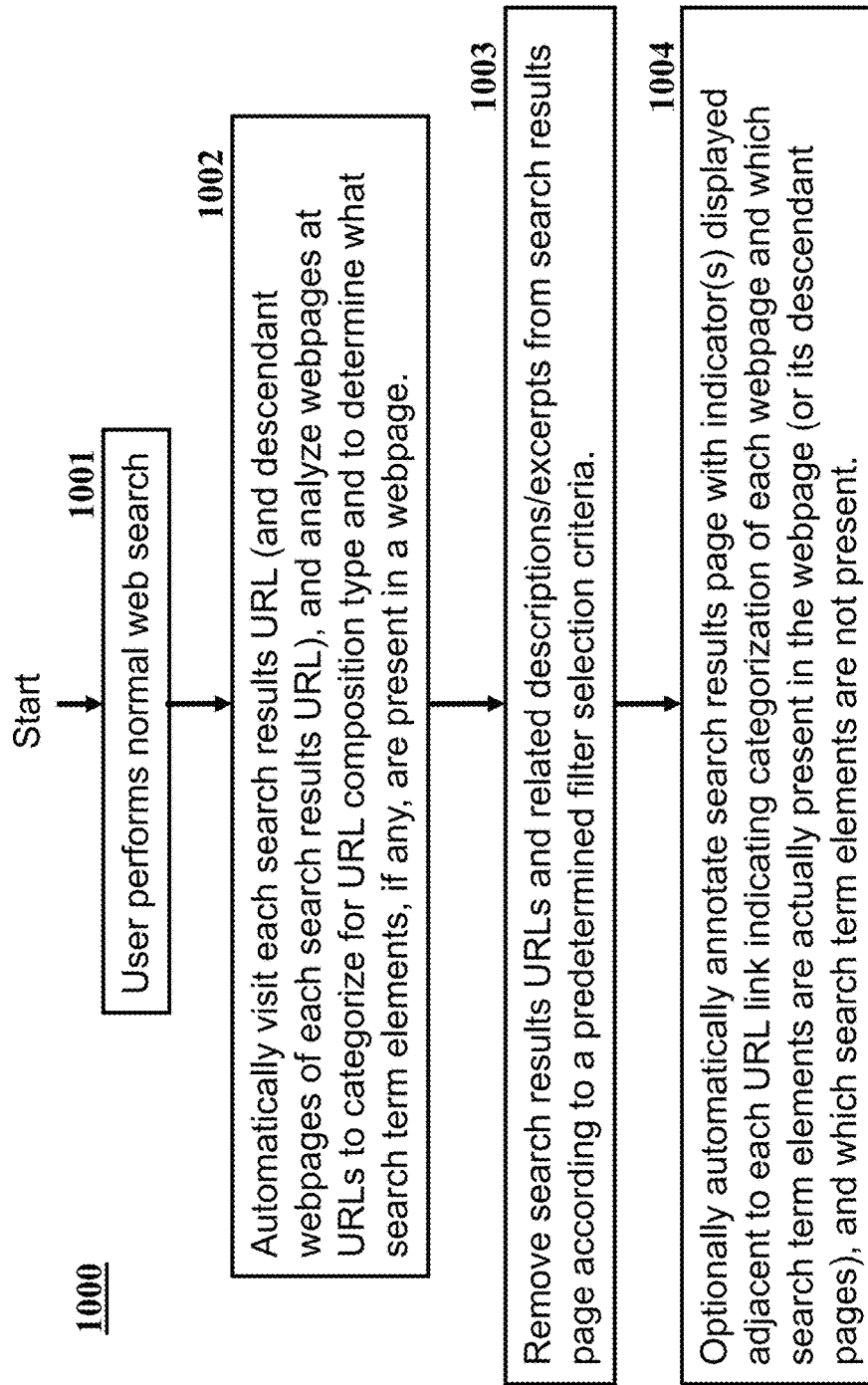


Figure 10

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1102 1104 1101

Filter Characteristic Selection 1107		
Select	Abbrev	Description
<input type="checkbox"/>	N	Null Page – No search term elements appear
<input type="checkbox"/>	NP	Null Partial – Some but not all elements appear
<input checked="" type="checkbox"/>	ND	Null Descendant – Missing terms appear on descendant pages 1108
<input checked="" type="checkbox"/>	DC	Descendant Completes – Including descendant pages, all terms appear
<input type="checkbox"/>	C	price Comparison webpage 1110 1109
<input checked="" type="checkbox"/>	S	Search webpage
<input type="checkbox"/>	SL	Sponsored Links included on webpage 1111
<input checked="" type="checkbox"/>	I	Information webpage
<input type="checkbox"/>	BI	Blog webpage 1112
<input checked="" type="checkbox"/>	Fo	Forum webpage – theme focused
<input type="checkbox"/>	N	News webpage 1113
<input checked="" type="checkbox"/>	SN	Social Networking webpage
<input type="checkbox"/>	R	Retailer/Distributor webpage
<input checked="" type="checkbox"/>	G	Gallery webpage 1106

1103 1105

Figure 11

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# INTERNET SEARCH RESULTS ANNOTATION, FILTERING, AND ADVERTISING WITH RESPECT TO SEARCH TERM ELEMENTS

## CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a Continuation of U.S. Utility patent application Ser. No. 16/790,057, filed on Feb. 13, 2020 entitled "Internet Search Results Annotation for Search Term Elements Present or Absent in Referenced Webpages and Descendant Webpages", which is a Continuation of U.S. Utility patent application Ser. No. 16/553,900 filed on Aug. 28, 2019 entitled "Internet Search Results Annotation and Filtering for Missing Search Terms", which is a Continuation of U.S. Utility patent application Ser. No. 16/199,192 filed on Nov. 25, 2018 entitled "Internet Search Results Annotation for Missing Search Terms in Descendant Webpages", which is a Continuation of U.S. Utility patent application Ser. No. 15/383,907 filed on Dec. 19, 2016 entitled "Automatic Webpage Characterization and Search Results Filtering", which is a Continuation of U.S. Utility patent application Ser. No. 14/820,433 filed on Aug. 6, 2015 entitled "Automatic Webpage Characterization and Search Results Annotation", which is a Continuation of U.S. Utility patent application Ser. No. 13/163,614 filed on Jun. 17, 2011 entitled "Automatic Webpage Characterization and Search Results Annotation".

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## FIELD OF THE INVENTION

This invention relates to systems and methods for Internet search and related advertising functions.

## BACKGROUND

At the time of the present invention, it is frequent that a user of Web browsers and search engines clicks on a link in the search engine results only to find themselves on a website that offers none of the information they were searching for. Instead, they often find webpages that simply waste their time. Many such webpages provide mostly links to other sites and frequently offer an overwhelming number of advertising links. Such websites that primarily offer links to other Websites may thus be referred to as "linking sites". Other categories of website/webpage are found in search results that are irrelevant or of little inherent use with regard to what the user seeks and also effectively waste the user's time.

Many more domain names are purchased than there are active websites performing specific functions particular to a user or business. When a domain name purchaser "parks" a domain at a hosting company, that domain may show up as an "under construction" message, however frequently the user who makes the decision to park the domain opts for making it a "linking site" which has some financial advan-

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tage to them. Some registrant/hosting companies automatically make a parked domain into a linking site without compensating the owner at all. Also, there exist businesses that own a very large number of domains and place linking site functionality at those URLs. Some of these choose domain names that are misspellings of popular business names. Regardless of why and how such linking sites are placed on the Internet, it is very frequent today that someone performing web searches finds themselves looking at such a site when they hoped to be viewing the site belonging to a real business. This again wastes time and frustrates the user. A way to warn the user that they are about to navigate to such a site would be useful to many persons. Some may even want a way to exclude such a site from being referred to in their search results.

While search engine providers today claim to focus on providing "relevant" results, the reality seems to be that their primary mission is to make money—typically through advertising and linking-based referral services.

A user may find that a webpage located at a URL link provided on a search results page not only contains irrelevant information given their intended search, it also doesn't contain the search terms that they had specified. The basic format for specifying a search with any search engine includes an implied AND-function of the specified search term elements. As such, one would expect that each webpage corresponding to a search result URL link contains all the specified search term elements. Unfortunately today, it is frequent that many of the search term elements will be missing from the results webpage and in some cases all will be missing. Sometimes a subset of search term elements will be contained in a webpage located at a search result URL link while other specified search term elements are located in descendant webpages of the webpage located at the search result URL link. Thus, the descendant webpage may still at times be useful to the user. There is a reason a user specifies the initial set of search term elements. They expect results where each listed webpage contains all the elements. Knowing in advance which webpages contain which search term elements would be useful to aid the user in minimizing lost time and frustration.

FIG. 1 shows a typical search engine browser window 101 running on a personal computing device, in this case a laptop or notebook computer 100. In response to search term elements entered in the primary search term input bar 102, the search engine returns for example, results information groups 103 and 104, each group containing the title of a search result webpage, some form of excerpt from the webpage, and the URL link at which the webpage is located. To the left of this grouping sometimes appear specific links 105 related to the search engine itself, such as links to specific search engine tools, for example specific searches for images, videos, news, shopping, books, places, blogs, discussions, recipes, patents, and more. At the right of results information groups 103 and 104, it is common that groups of advertising information such as titles, links, and summaries appear, shown here as advertising information groups 106 and 107.

It would be advantageous if additional information appeared on a browser search results webpage such as that shown in FIG. 1 where this additional information provides insight to the user on what is contained in the webpage located at each search result URL such as URLs 108 and 109. This foreknowledge of the contents of these webpages could prevent the user from wasting their time reviewing pages that are not relevant to their search. It would also be advantageous if the user could optionally cause results

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webpage links that fall into undesirable or relevant categories (from their perspective and/or relative to their current search) to be deleted from their search results in order to focus their search more completely on irrelevant webpages. Such enhancements to the search process save users valuable time and avoid frustration—making the user experience more positive from both an emotional and productivity standpoint—especially for those users who perform web browsing and searching for a substantial part of their every-day job.

### SUMMARY

The present invention offers users the opportunity to annotate and/or filter their search results to delineate and/or remove references to sites that offer unwanted or irrelevant categories of information and as a result provide the user with a set of search results that offer and/or emphasize information of substance on their search topic. Some users may choose to not eliminate potentially irrelevant search results and have the search engine results prominently flagged or annotated according to the instant invention to mark webpages according to categories of information which may for instance include webpages that consist primarily of links to other sites and/or do not provide relevant business or product oriented information. While such annotation or filtering functions may be performed by the company providing the search engine itself, performing such functions may be counter to the business interests of the search engine provider. Alternately, a plug-in or software program running on the user's computer or on a compute server on the Internet, may analyze and scrutinize the search results being shown to the user and flag/annotate search results so the user will know in advance which links to avoid. A plug-in or software program on the user's computer can analyze webpages located at URL links in the search results webpage to determine which sites comprise an unwanted site by automatically visiting each site in the list and running a quick analysis of the landing webpage. Given the available speed of broadband connections today as well as the ever increasing speed of processors in personal computers this capability is definitely viable. Even if it takes longer to scrutinize the websites located at the URLs in a typical search results list of 10 hyperlinks, the automatic scrutinizing and marking can be done starting with the links at the top of the page and successively marking search results going down the page as the analysis of each referenced URL is completed. Since a user's viewing process typically starts at the top of the search results list followed by working their way down the page, this methodology of flagging or annotating search results URL links is compatible with the typical user's manner of scrutinizing and interpreting search results.

Analysis of webpages located at search results URL links (and descendant pages of those pages) may be viewed for example as falling into two major categories—a categorization of the information provided by the webpage, and the presence of search term elements on the webpage.

To provide increased performance for a webpage characterization analysis according to the present invention, a compute server or servers may be located on the Internet, including location on one or more compute servers in the "Cloud". This increased performance may be advantageous for webpage analyses that include descendant webpages of a webpage located at a search result URL link.

When analyses of webpages are performed according to the present invention it is possible to accumulate a database

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of categorization results of analyzed webpages. This may be useful and is considered an optional functionality of the present invention. However, webpages frequently change and the most accurate categorization will always be that performed at the time of the user's search.

Once a webpage has been analyzed according to the present invention, the search result grouping on search results webpage wherein the URL link to a specific webpage is located may be annotated to indicate its categorization as well as the presence of search term elements. Alternately, a search results grouping may be deleted from a search results webpage according to a characterization of the webpage referred to by the search result grouping by way of a filtering functionality based on a set of criteria specified by the user.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a typical prior art search engine results webpage displayed in a browser window on a typical PC, in this case a laptop computer.

FIG. 2 shows an overview of possible system architectures according to the present invention.

FIG. 3 shows an annotated search engine results webpage according to the present invention where annotations have been added adjacent to search result groupings indicating categorization of the webpage located at each search result URL link.

FIG. 4 shows an alternative form of annotation for a search engine results webpage according to the present invention wherein categories are spelled out in longer format rather than the short form abbreviations shown in FIG. 3.

FIG. 5 shows an annotated search engine results webpage according to the present invention with abbreviated categorization similar to FIG. 3 but also including separate annotations adjacent each search result grouping to indicate which search term elements are present in the webpage referenced by the search result URL link.

FIG. 6 shows an annotated search engine results webpage according to the present invention with abbreviated categorization annotations shown as well as separate annotations adjacent each search result grouping to indicate which search term elements are present in the webpage referenced by the search result URL link, also including which search term elements are present in a descendant webpage of the webpage referenced by the search result URL link.

FIG. 7 shows an annotated search engine results webpage according to the present invention with abbreviated categorization annotations shown as well as separate annotations adjacent each search result grouping to indicate which search term elements are present in the webpage referenced by the search result URL link, also including which search term elements are present in multiple descendant webpages of the webpage referenced by the search result URL link.

FIG. 8a shows an exemplary process for analysis, categorization, and annotation of webpages located at search result URL links.

FIG. 8b shows an exemplary process for analysis and annotation to indicate which search term elements are actually present in a webpage located at a search result URL link.

FIG. 9 shows the process of analysis and annotation to indicate which search term elements are actually present in a webpage located at a search result URL link, as well as which search term elements are present in descendant webpages of a webpage located at a search result URL link.

FIG. 10 shows the process for analyzing webpages to categorize them for composition type and presence of search

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term elements, followed by filtering search results to remove certain search result groupings according to a predetermined filter selection criteria.

FIG. 11 shows one exemplary and non-limiting embodiment of a dialog box where a user enters filter selection criteria that determines which search result groupings would be displayed or not displayed on a search results webpage.

#### DETAILED DESCRIPTION OF THE INVENTION

FIG. 2 shows an overview of possible and exemplary architectural implementations for a system 200 according to the present invention with emphasis on where different software functionalities may reside and operate. The user interface for a search engine appears to the user in a browser window 201 running on a PC 202. PC 202 may be any form of personal computing device including for example a desktop, laptop, notebook computer, smart phone, tablet computer, etc. According to the present invention webpages located at search results URL links are analyzed to determine their specific characteristics. This analysis is performed by an analysis engine which may occur on the user's PC as analysis engine 203. The analysis engine may also operate on a specific server website 204 as analysis engine 205. Alternately the analysis engine may operate on one or more compute servers located in "the Cloud" 206 and occur as one or more of analysis engine instances 207. Yet another implementation has the webpage analysis engine co-resident with a webpage annotation engine as element 208 operating on a search engine website 209 in the circumstance where analysis annotation and/or filtering according to the present invention are performed by the search engine provider themselves. For configurations where the webpage analysis engine is located on the user's computing device 202, a server specific website 204, or in the cloud 206, the annotation engine 211 will typically reside on the user's computing device 202. These examples are exemplary and non-limiting, and it is possible to construct a system where analysis, annotation, and filtering engines reside on any of the various computer locations shown in FIG. 2.

Also shown here on the search engine provider's website 209 is an optional characterization database 210. Search engines keep records of webpages they supply links to as part of search results, and when search engine robots visit such webpages, besides recording the information from the page, functionality belonging to the search engine provider could characterize the webpage according to the different characterization functionalities of the present invention and record those characterizations in a characterization database. Then that information would be instantly available when search results are supplied to the user and could be utilized in annotating and/or filtering search results should a search engine provider wish to perform such a functionality according to the present invention. It is also possible for any of the webpage analysis engines shown in FIG. 2 to create and update a characterization database as the analysis engine operates regardless of whether that engine operates on PC 202, specific server website 204, or one or more compute servers located in the Cloud 206. According to the present invention the preferred implementation for analysis of a webpage located at a search results URL has that analysis occurring at the time of a user's search request, since only then will the characterization of the webpage truly represent what is contained on that webpage at that moment in time. Should an analysis and characterization be performed at an earlier point in time with the results saved in a database, and

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that database be referred to weeks or months later for information on a specific webpage located at a search result URL, it is very possible that the information will have changed and the characterization will be partially or totally inaccurate. In many cases the general content and format/composition of a webpage will remain constant over a long period of time and the information contained in a database would be sufficient. The trade-off is in saving time by utilizing a database as opposed to performing real-time webpage analysis to ensure that the analysis is 100% accurate. With regard to the presence of search term elements in a webpage located at a search result URL, the most accurate analysis would be that performed immediately following the generation of the search results in response to a user's request. Regardless of when the analysis of webpages referred to in search results is performed relative to the time of a user's search, the present invention uniquely describes systems and methods for analyzing, characterizing, annotating, and/or filtering the search results.

Thus according to the present invention, an Internet search results webpage is analyzed to determine certain specific characteristics of each webpage located at each search result URL provided in the Internet search results webpage. Once this analysis is performed, in one embodiment of the present invention each search result on the search results webpage is symbolically annotated to convey to the user who performed the Internet search the specific characteristics of the webpage located at the URL corresponding to the search result where these specific characteristics have been determined by the analysis. Alternately or in combination with this annotation functionality, certain search results may be filtered or deleted from the search results webpage such that the user never sees them and is therefore never distracted by them.

The analysis of each webpage located at each search result URL (and each descendant page of such a webpage) provided in the Internet search results webpage may determine certain specific characteristics that fall into different categories. Two exemplary and non-limiting categories are:

1) The composition of the webpage with regard to the types and mix of content that is provided on the webpage, included but not limited to content, composition, style, organization, purpose, and behavior of the webpage; and

2) The presence or lack of presence of the search term elements that were provided by the user in making the search request that resulted in the search results. Related to this form of characteristic, further analysis may optionally determine the presence or lack of presence of search term elements in descendant webpages of a webpage located at a search result URL.

With regard to the composition of a webpage located at a search results URL, the definition of, organization of, and delineation of categories that may be used to categorize any given search results webpage is somewhat arbitrary, and hence the categories shown herein are exemplary and non-limiting. Other categories are possible and are considered to be within the scope of the present invention. Also, while a system or method according to the present invention may start with the categories shown, an additional feature of the invention includes the ability of the system or method to learn the likes of a particular user and adjust the categorization methodology to better align thereafter with the determinations of a specific user. For instance, a user may view a system according to the present invention wherein a first webpage located at a certain search result URL is automatically placed by the system in category "A". The user may then indicate to the system that for their preferences, the

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particular webpage would be better placed in category “B”. Thereafter, other webpages located at search results URLs that are similar to the first webpage would be placed in category B instead of category A.

#### Example Categories Regarding Webpage Composition

The following examples show both a category description and an abbreviation that represents the category. The choices for these abbreviations are completely arbitrary. Note also that for the characterization of any given webpage these categorizations are not mutually exclusive. A particular webpage may be characterized by any multiples of the categories listed below in any combination.

Webpages that are focused on a search or search/compare capability

C—Price Comparison Website

e.g. Nextag.com

S—Search site—takes the search criteria from the initial search and inserts all or part of that criteria into a search line, runs a search, and displays results. Alternately, the webpage inserts all or part of the search criteria into a search line, and asks the user if the displayed search criteria was what they were looking for. This last scenario may overlap with “Echo” websites that parrot-back the user’s search terms but show little or no relevant information.

e.g. theFind.com

Webpages that primarily comprise links to other websites:

L—Site is predominately links—Site may look to be focused on a product or service category, but most user actions are greeted with a list of links or sponsored links.

e.g. masterphone.com

SL—Site includes some sponsored links such as Google Adwords or equivalent

Webpages that comprise an offer of information on one or more topics:

I—Site offers information but is not selling the information—May also include sponsored links or banner ads/videos.

e.g. Wikipedia.org and “Wiki” sites in general

V—Review site—focuses on product reviews.

e.g. PlasmaTVBuyingGuide.com

Bl—Blog site

e.g. blogger.com

Fo—forum site, discussion site—theme focused

e.g. bimmerforums.com

N—News site

e.g. CNN.com

SN—Social Networking site

e.g. Facebook.com

Webpages that comprise information related to goods and/or services for sale or distribution:

R—Retailer/Distributor Site

e.g. Amazon.com

G—Gallery site for Art/Photos/Images/Stock Photos/Clip-Art, etc.

e.g. iStockPhoto.com

V—Video site

e.g. CBMovies.com

PD—Publication/Document site—docs are available free, or free by registration, or for sale. Abstracts may be shown. Site may show part or all of an abstract and may not show all search term elements. All search term elements may appear on the complete document but

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which must be purchased or retrieved after registration. Typical examples of these are businesses that sell copies of scientific papers or Market Research firms that sell reports/forecasts.

e.g. ScienceDirect.com

Webpages that comprise information related to the behavior of the webpage:

E—“Echo” or “Parrot” website—whatever search terms the user types in, the site somehow manages to have the search phrase appear on the page, although the search phrase does not appear anywhere on the page in the normal context of the page.

e.g. theFind.com

Webpages that reside on the website of a company that is the primary manufacturer of goods or provider of services where the domain URL of the webpage is the primary URL (Home page) of the company:

H—Manufacturing or Service company home page (primary corporate) site Contains submenus like “Home”, “About”, and “Contact” Offers detailed product/service information

e.g. IBM.com

Webpages that comprise content that is in some way related to the domain name of the webpage:

U—URL or Domain site—similar to Corporate site, however is located at a domain URL that is contained in the search terms and/or is closely related to the search terms.

e.g. 1800flowers.com

FIG. 3 shows search engine results in a browser window 301 which have been annotated according to the present invention. Five search term elements are shown in the search input bar 302. Two example search result groups 303 and 304 are shown. Adjacent search result group at 303 are annotated abbreviations 305 which for example would classify the webpage located at the URL associated with search result group 303 as a (S) search site offering (PD) publications/documents for sale, and where (NP)—some but not all the search term elements appear on the page, termed herein a Null Partial webpage. Adjacent search results group 304 are annotated abbreviations 306 which for example would classify the webpage located at the URL associated with search result group 304 as (C) a price Comparison website, (SL) indicating the webpage contains sponsored links, and (E) indicating that the webpage is characteristic of an “Echo” or “Parrot” website where the search terms the user typed in manage to appear as the search phrase on the page, however the search terms appear nowhere else on the page. To enhance the abbreviations, a combination of letters and colors may be used together, or alternately, only letters with no color enhancement or colors with no letters. In the figures, different background patterns are used behind abbreviation letters to indicate where different colors might be used in an actual implementation. Alternately, there may be only colors, with no letter abbreviations, to designate the various webpage composition classifications.

FIG. 4 shows a browser window 401 with annotated search results according to the present invention. Search input bar 402 again shows five search term elements similar to input bar 302 in FIG. 3. Result groupings 403 and 404 show an alternate form of annotation style 405 and 406. Instead of a small box with one or two letter abbreviations as shown for annotations 305 and 306, FIG. 4 shows categorization annotations with their names spelled out or with longer abbreviations than those in FIG. 3. For instance annotation 405 in FIG. 4 still indicates that the webpage located at the URL for search result 1 is a search page

offering publications/documents for sale and where some but not all the search term elements appear on the page, termed herein a Null Partial webpage. The annotation style of FIG. 4 will utilize more screen area in the vertical direction than that of FIG. 3, however it may be easier for some users to understand and adapt to. As in FIG. 3, the shading patterns used are intended to indicate where colors would also differentiate the annotation categories. The choice of a short abbreviation format or the longer form shown in FIG. 4 could be a configuration option offered to the user. If the same colors are used for categories in both the formats of FIG. 3 and FIG. 4, a user could start with the long form annotation of FIG. 4 and once they begin to associate the colors with the categories, they can switch to the short form abbreviation of FIG. 3 which is more space efficient on the screen.

#### Example Categories Regarding the Presence of Search Term Elements

Although a search engine may reference a webpage as one that should show all the search term elements previously specified by the user performing the search, that is frequently not the case. The logical operation performed by a search engine when multiple search term elements are specified by a user is assumed by default to be the “AND” function. As such, if the user specifies three separate words as search term elements, those three words should appear in every webpage represented by a URL in the search term results. Many times some but not all of the search term elements will appear in a webpage located at a URL provided by the search results. Sometimes none of the search term elements appear on such a webpage.

In analyzing a webpage located at a search result URL, the functionality according to the present invention performs a general characterization with regard to the presence of search term elements and indicates, as an annotation, an abbreviation indicating to the user the degree to which their specified search terms appear in the webpage located at the search result URL. These general characterizations may also be used as filtering criteria per FIGS. 10 and 11. Further, abbreviations may be supplied to indicate the presence of search term elements in descendant pages of a webpage located at a search result URL. The presence of search term elements in a descendant webpage can be especially useful to a user when less than all the specified search term elements appear in a webpage whose URL appears in the search term results. The following are examples of general characterizations which relate to the presence of search term elements. These are by no means all the characterizations which are possible with regard to this webpage characteristic. These characterizations are exemplary and non-limiting, and other characterizations are possible.

N—Null page—None of the search term elements appear on the page.

NP—Null Partial—Some but not all the search term elements appear on the page.

ND—Null Descendant—Not all the search term elements appear on the page and some of the missing search term elements appear on descendant pages of the page.

DC—Descendant Completes—At least one descendant page contains some or all of the search term elements, such that the result page together with its descendant pages contain all the search term elements.

Alternately, a scheme of abbreviations can be utilized where the presence of search term elements in the page located at a search result URL is annotated separately from

an annotation indicating the presence of search term elements in descendant webpages.

According to the invention, certain specific characteristics of the webpage located at the URL corresponding to the search result may comprise which search term elements are present in the webpage located at the URL corresponding to a search result out of those search term elements that were submitted to a search engine to produce the search results webpage. FIG. 5 shows one exemplary embodiment indicating how this information conveying the specific presence of search term elements may be annotated on a search results webpage 501. Search input bar 502 contains five exemplary search term elements. Search result groupings 503 and 504 optionally contain category annotations 305 and 306 similar to those shown in FIG. 3. In addition, search result groupings 503 and 504 contain search term elements annotations 505 and 506 indicating for example which search term elements actually appear on the webpage located at the search result URL link. In this example search term elements which are present might be shown as black text on a white background, with those search term elements that are not present shown with white text on a black background. Colors and shadings here are arbitrary and exemplary.

In addition to the search term element related annotations shown in FIG. 5 and the analysis that determined the presence of search term elements, the specific characteristics of the webpage located at the URL corresponding to the search result may further comprise which search term elements are present in a descendant webpage of the webpage located at the URL corresponding to the search result out of those search term elements that were submitted to a search engine to produce the search results webpage.

In order to further convey the presence of search term elements in descendant webpages, FIG. 6 shows an annotated search results browser window 601 showing search input bar 602 again with five example search term elements. Search result grouping 603 now contains two rows 604 and 606 of annotation information related to the presence of search term elements. Row 604 contains an annotation of search term elements present in the webpage located at the URL link for search result 1. Level-1 identifier 605 appears adjacent row 604. Additionally a row of search term element annotation 606 is presented which refers to Level-2 webpage 607 which is a descendant of the webpage located at the primary URL link herein referred to as Level-1 605. The next search result grouping 608 is shown below grouping 603 and has been moved further down the page as a result of the vertical screen area required for search term element annotations 604 and 606. As such, annotations related to the presence of search term elements in the webpage located at the URL for search result 2 are not shown in the image of FIG. 6.

Frequently webpages residing at the search result URLs contain multiple links to descendant webpages wherein these descendant webpages may contain some or all of the search term elements. FIG. 7 shows an annotated search result browser window 701 with search input bar 702 showing again five specific search term elements. Search result grouping 703 has been further annotated in the example of FIG. 7 to show the presence of search term elements in more than one descendant webpage. As such, the search term elements 704 present at Level-1 705 indicate search term elements are present or not present in the webpage located at the result 1 URL. Additionally, rows 706 and 708 provide annotation for search term elements present or not present in the webpage located at the result 1 URL, while level annotations 707 and 709 provide detailed regard-

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ing two example descendant pages of the page located at the result 1 URL. Annotation **705** indicates that the first listing of search term elements in row **704** correspond to Level-1, the webpage located at result 1 URL. Search result grouping **710** corresponds to search result 2, and only the upper portion of this grouping is shown in FIG. 7 as the additional annotation for search result grouping **703** has consumed additional screen area in the vertical direction. Note that in reality more search results would be shown on a typical PC monitor and that the text in FIG. 7 and preceding figures has been magnified for clarity.

Some categories of webpage such as those selling documents/publications frequently show up in search results even though only some of the search term elements appear in the webpage. A frequent scenario includes showing only an abstract or part of an abstract on the page that is referenced in the search results while the remainder of the search terms appear in a descendant page which is the full document that requires payment or registration. Unfortunately, the user is not able to see the full document before paying or registering which creates a "catch-22" situation. A user wishing to not visit those webpages can be forewarned by annotation and/or filtering according to the present invention.

According to the present invention, Internet search results are analyzing and annotated and/or filtered. Webpages located at search results URLs are analyzed to determine certain specific characteristics of each webpage located at a search result URL provided in the Internet search results webpage. Subsequently, each search result grouping on the search results webpage is symbolically annotated to provide the search user with additional information to convey specific characteristics of the webpage located at the URL corresponding to the search result. While it is possible for the search engine provider themselves to analyze webpages in advance and record such characteristics, such activity may be counter to their business model and also provides information that will occasionally not be current or accurate. The preferred embodiment for the present invention is to perform a new analysis of a webpage immediately after a search is performed that references the webpage in the search results. It is also possible for a user to record information about a webpage as they encounter that webpage, and utilize that information for annotation or filtering in future searches. Again this is not the preferred embodiment according to the present invention as such information would again no longer be current and therefore not necessarily accurate. Computing bandwidth at the time of the invention has increased enormously over that available in previous years, both on individual personal computing devices as well as servers present on the Internet and now in the Cloud. As such, performing webpage analysis in real time is no longer as time-consuming as would have been the case previously.

Process **800** for one embodiment of the present invention is described in FIG. **8a**. Here a user performs **801** a normal web search. Subsequently a software program with access to the Internet automatically visits **802** each search result URL and analyzes the webpage located at a URL to categorize the webpage in accordance with criteria described herein thereby determining certain specific characteristics of the webpage. These characteristics may relate to the composition, style, function, or behavior of the webpage and may also relate as described in FIG. **8b** to the presence of search term elements on a webpage. As the analysis is been completed for each webpage located at a search result URL, the search results webpage is annotated **803** with indicators displayed adjacent to each search result grouping to indicate

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the categorization of the webpage located at the URL displayed within the grouping.

According to the process **810** of FIG. **8b**, a user performs **811** a normal web search, followed by a software program according to the invention automatically visiting each search results URL whereby the webpage at each URL is analyzed **812** to determine what search term elements if any, are present in the webpage. In step **813**, the search results webpage is automatically annotated such that each search result (individual URL) on the search results webpage is provided with information adjacent to each search result grouping to indicate which search term elements are actually present in the webpage, and which are not present.

It is common that, especially when a complex combination of search terms is entered into the search bar in a search engine webpage, that some search term results provide links to webpages that do not contain all of the specified search term elements. In some cases those webpages contain links to descendant webpages which in fact may contain some or all of the missing search term elements, and/or all of the specified search term elements.

To indicate to the user which pages and descendant pages referenced by the provided search results contain the search term elements they seek, it is useful to analyze webpages located at search results URLs and their descendant webpages to determine this information. According to process **900** of FIG. **9** a user performs **901** a normal web search. Subsequently, a software program with Internet access automatically visits each search results URL and analyzes **902** the webpage at the URL to determine which search term elements, if any, are present in the webpage and locate each link on the webpage that points to a descendant webpage. Then, a software program with Internet access will automatically visit each descendant webpage uncovered in the analysis of step **902** to determine which specified search term elements, if any, are present in the descendant webpage. Finally in step **904**, search result groupings each containing a Level-1 URL link are automatically annotated to additionally include descendant page URL links to indicate which search term elements are present in each descendant webpage and which are not present.

Some users will prefer to view annotations of their search results and not have any information automatically removed. Other users may prefer to have unwanted categories of webpages removed automatically so they have less information to view. Users choosing to delete unwanted information by way of a filtering process may still wish to see the remaining search results annotated according to the present invention. There is an analogy regarding these preferences when one looks at how users typically handle spam email. Many users frequently prefer to have their spam filter mark emails as potential spam and even sort those emails into a separate spam mailbox, at the same time choosing to not delete emails that are determined to be potential spam.

One embodiment of the present invention focuses on annotating a search results webpage without deleting any individual result. According to an alternate embodiment of the present invention, some categories of webpages at search results URLs may have their references removed from a search result webpage according to exemplary automatic filtering procedure **1000**. According to FIG. **10**, a user first performs **1001** a normal web search. A software program then visits each search results URL, and optionally descendant webpages of each search results URL webpage, and analyzes **1002** each webpage to categorize the webpage for composition type and to determine which search term elements if any are present in the webpage. Subsequently in

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step **1003**, certain search result URLs and related search result groupings, including descriptions and excerpts, are automatically removed according to a predetermined filter selection criteria. In combination with this removal of information, the remaining search results on the search results page may be optionally annotated **1004** according to the present invention displaying indicators adjacent to each URL link indicating categorization of each webpage and optionally which search term elements are actually present in the webpage (or its descendant pages), and which search term elements are not present.

When the filtering operation per the procedure of FIG. **10** is employed, a search results page may end up with fewer result groupings than the initial 10 groupings which is common to current search engines. In this case, fewer results may be shown on each results webpage, or alternately an additional search may be performed to add search results to bring the total back to the standard 10 groupings. If annotation is utilized in conjunction with the filtering process, while filtering deletes information, annotation will normally add information. The resulting combination may produce a similar overall amount of information to what is normally shown on a search results webpage. When a filtering function is desired as described herein, annotation engine **211** and analysis/annotation engine **208** of FIG. **2** would also perform the filtering function and alter the search results webpage accordingly.

When a user wishes to employ search results filtering, it is useful to include a filtering criteria table such as that shown in FIG. **11**. The diagram of FIG. **11** is organized in the manner that a dialog box **1101** might be constructed to appear on a user's screen as part of a configuration function associated with the present invention. Here, a column **1102** is included to indicate whether a characteristic should be selected or not for the filtering operation. Here radio buttons such as **1103** provide a "check box" indication of which characteristics a user wishes to include in the filtering process and which they do not. As shown here, a box being checked would for example indicate that webpages located at a search results URL would be viewed by the user when their characteristic is checked in column **1102**, and that when not checked, webpages at search results URLs with unchecked characteristics would be filtered-out or removed from their search results webpage display. Alternately, an implementation can be constructed where the reverse is true relative to which boxes are checked and which are not. The next column **1104** indicates for instance an abbreviation for the filter characteristics such as the characteristic abbreviated G **1105** indicating for example a Gallery style webpage **1006**. For consistency and ease of use, it is best if the abbreviations shown in column **1104** of FIG. **11** are consistent with abbreviations adjacent search result groupings shown in FIG. **3** and FIGS. **5** through **7**. Column **1107** indicates a more detailed description of each webpage characteristic type. In this example characteristic ND is checked indicating **1108** that webpages will be allowed where missing search term elements appear on Descendant pages. Characteristic DC is also checked indicating that including Descendant pages, all search term elements appear **1109**. Characteristic S is checked indicating that Search type webpages are included **1110** in the displayed search results. Characteristic I is checked indicating that Information webpages are included **1111** in the displayed search results. Characteristic Fo is checked indicating that theme-focused Forum-type webpages are included **1112** in the displayed

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search results. Characteristic SN is checked indicating that social networking webpages are included **1113** in the displayed search results.

The foregoing description of preferred embodiments of the present invention has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations will be apparent to one of ordinary skill in the relevant arts, while remaining within the scope of the appended claims. For example, steps performed in the embodiments of the invention disclosed can be performed in alternate orders, certain steps can be omitted, and additional steps can be added. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, thereby enabling others skilled in the art to understand the invention for various embodiments and with various modifications that are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the claims and their equivalents.

What is claimed is:

**1.** In an Internet search system for displaying search results during an Internet search process, the search results being generated based on user-specified search term elements, where at least one search result references a webpage that is missing at least one search term element, a method for providing an interactive graphical user interface for the user to readily discern such search result without opening its referenced webpage, the method comprising:

receiving, on a server, a first search request submitted via the Internet by a user operating a computing device with a display screen, wherein the first search request is comprised of one or more search term elements;

generating a plurality of search results based at least in part on the submitted first search request, wherein the plurality of search results is comprised of:

- (i) a first type of search result which references a first webpage that contains all submitted search term elements; and
- (ii) a second type of search result which references a second webpage that is missing at least one submitted search term element;

causing the display screen to display the first and second types of search results on a search results webpage;

causing the display screen to display the first type of search result as a first search result grouping, wherein the first search result grouping is comprised of one or more of: a title for the first webpage, an Internet link for the first webpage, an excerpt of the first webpage, or a URL for the first webpage, and wherein the first search result grouping does not include any annotation for missing search term elements;

causing the display screen to display the second type of search result as a second search result grouping, wherein the second search result grouping is comprised of an annotation showing the at least one search term element missing in the second webpage and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage, and wherein the annotation is comprised of a text representing the at least one search term element; and

wherein the annotation enables the user to readily discern, without opening the second webpage and navigating away from the search results webpage, that the second webpage is missing the at least one search term ele-

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ment, and by not opening the second webpage a faster execution is enabled for the Internet search process.

2. The method of claim 1, wherein the annotation is displayed as one or more standalone lines in the second search result grouping; and

wherein the annotation is displayed at the bottom of the second search result grouping.

3. The method of claim 1 further comprising: causing the display screen to display, in combination with the annotation within the second search result grouping, a selectable filtering function that, when selected, automatically causes the second search result grouping to be removed from the search results webpage.

4. The method of claim 3, wherein the user's computing device is a smart phone with a smaller display screen than a laptop, desktop, notebook, or tablet computer's display screen, and wherein the automatic removal of the second search result grouping enables the smaller display screen to display an increased number of first type of search results.

5. The method of claim 1 further comprising: causing the display screen to display one or more selectable advertisements on the search results webpage, wherein the one or more selectable advertisements are related to one or more of the search term elements.

6. The method of claim 1, wherein the plurality of search results is further comprised of:

(i) a third type of search result which references a third webpage that is missing at least one search term element, wherein a descendant webpage linked directly one level from the third webpage contains the at least one missing search term element; and

(ii) a fourth type of search result which references a fourth webpage that is missing at least one search term element, wherein all descendant webpages linked directly one level from the fourth webpage are also missing the at least one search term element; and

further comprising:

causing the display screen to display the fourth type of search result in a same manner as the second search result grouping.

7. A system for an Internet search engine provider to provide an interactive graphical user interface for a user during an Internet search process to readily discern a search result that references a webpage that is missing a search term element, without requiring the user to open the search result's referenced webpage, the system comprising:

one or more servers, wherein the one or more servers receive a first search request via the Internet from a user-operated computing device,

wherein the first search request is comprised of a plurality of search term elements for performing AND operations according to search logic guidelines published by the search engine provider;

wherein in response to the first search request, the one or more servers perform an Internet search to produce a search results webpage comprising a plurality of search results, wherein the plurality of search results is comprised of:

(i) a first type of search result which references a first webpage that contains all search term elements; and

(ii) a second type of search result which references a second webpage that is, contrary to the search logic guidelines for AND operations published by the search engine provider, missing at least one search term element;

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wherein the one or more servers provide the search results webpage via the Internet for displaying the plurality of search results on a display screen of the user-operated computing device;

wherein the first type of search result is displayed as a first search result grouping and the second type of search result is displayed as a second search result grouping;

wherein the first search result grouping is comprised of one or more of: a title for the first webpage, an Internet link for the first webpage, an excerpt of the first webpage, or a URL for the first webpage; and wherein the first search result grouping does not include an annotation indicating one or more missing search term elements in the first webpage;

wherein the second search result grouping is comprised of a missing search term annotation and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage;

wherein the missing search term annotation is comprised of a text representing at least one search term element missing in the second webpage;

wherein the missing search term annotation is placed on the display screen at the bottom of the second search result grouping; and

wherein the missing search term annotation warns the user that the second webpage is missing the at least one search term element, and wherein the missing search term annotation enables the user to readily discern that the second webpage is missing the at least one search term element without opening the second webpage, thereby saving time and enabling a faster execution of the Internet search process.

8. The system of claim 7, wherein the display screen displays, in combination with the annotation within the second search result grouping, a selectable filtering function that, when selected, automatically causes the second search result grouping to be removed from the search results webpage.

9. The system of claim 8, wherein the user-operated computing device is a smart phone with a smaller display screen than a laptop, desktop, notebook, or tablet computer's display screen, and wherein the automatic removal of the second search result grouping enables the smaller display screen to display an increased number of first type of search results.

10. The system of claim 7, wherein the display screen displays one or more selectable advertisements on the search results webpage, where the one or more selectable advertisements are related to one or more of the search term elements.

11. The system of claim 7, wherein the plurality of search results is further comprised of:

(i) a third type of search result referencing a third webpage that is missing at least one search term element, wherein a descendant webpage linked directly one level from the third webpage contains the at least one missing search term element; and

(ii) a fourth type of search result references a fourth webpage that is missing at least one search term element, wherein all descendant webpages linked directly one level from the fourth webpage are also missing the at least one search term element; and

wherein the display screen displays the fourth type of search result in a same manner as the second search result grouping.

12. A system for operating an interactive graphical user interface during an Internet search process that enables a

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user to readily discern a search result that references a webpage that is missing a search term element without requiring the user to open the search result's referenced webpage, the system comprising:

a user-operated computing device capable of sending information to and receiving information from a search engine provider via the Internet, and also capable of operating an interactive graphical user interface for interacting with the search engine, wherein the device is any one of: a desktop computer, a laptop computer, or a notebook computer; a smart phone; or a tablet computer;

wherein the interactive graphical user interface interacts with, and enables, the user to submit a first search request via the Internet to the search engine provider, the first search request comprising a plurality of search term elements for performing AND operations according to published search logic guidelines;

wherein in response to the first search request, the device receives from the search engine provider a search results webpage comprising a plurality of search results, wherein the plurality of search results is comprised of:

- (i) a first type of search result which references a first webpage that contains all search term elements; and
- (ii) a second type of search result which references a second webpage that is, contrary to the published search logic guidelines for AND operations, missing at least one search term element;

wherein the first type of Internet search result is displayed on a display screen of the device as a first search result grouping and the second type of search result is displayed on the display screen as a second search result grouping;

wherein the first search result grouping is comprised of one or more of: a title for the first webpage, an Internet link for the first webpage, an excerpt of the first webpage, or a URL for the first webpage; and wherein each first search result grouping does not include an annotation indicating one or more missing search term elements in the first webpage;

wherein the second search result grouping is comprised of a missing search term annotation and one or more of: a title for the second webpage, an Internet link for the second webpage, an excerpt of the second webpage, or a URL for the second webpage;

wherein the missing search term annotation is comprised of a text representing at least one search term element missing in the second webpage, and wherein the missing search term annotation is placed on the display at the bottom of the second search result grouping; and

wherein the missing search term annotation enables the user to readily discern that the second type of search result is missing a desired search term element without opening the second webpage, and that by warning the user with respect to such search result, less time is wasted thereby enabling faster execution of the Internet search process.

13. The system of claim 12, wherein the display screen displays, in combination with the annotation within the second search result grouping, a selectable filtering function that, when selected, automatically causes the second search result grouping to be removed from the search results webpage.

14. The system of claim 13, wherein the user-operated computing device is a smart phone with a smaller display screen than a laptop, desktop, notebook, or tablet computer's

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display screen, and wherein the automatic removal of the second search result grouping enables the smaller display screen to display an increased number of first type of search results.

15. The system of claim 12, wherein the display screen displays one or more selectable advertisements on the search results webpage, where the one or more selectable advertisements are related to one or more of the search term elements.

16. The system of claim 12, wherein:

a third type of search result references a third webpage that is missing at least one search term element, and a descendant webpage linked directly one level from the third webpage contains the at least one missing search term element;

a fourth type of search result references a fourth webpage that is missing at least one search term element, and all descendant webpages linked directly one level from the fourth webpage are also missing the at least one search term element; and

wherein the display screen displays the fourth type of search result in a same manner as the second search result grouping.

17. A system for an Internet search engine provider to provide an interactive graphical user interface for a user during an Internet search process to readily discern a search result that references a webpage that is missing a search term element, without requiring the user to open the search result's referenced webpage, the system comprising:

one or more servers operated by a search engine provider, wherein the one or more servers receive a first search request via the Internet from a user-operated computing device;

wherein the first search request is comprised of a plurality of search term elements for performing AND operations according to search logic guidelines published by the search engine provider;

wherein in response to the first search request, the one or more servers perform an Internet search to produce a search results webpage comprising a plurality of search results, wherein the plurality of search results is comprised of:

- (i) a first type of search result which references a first webpage that contains all search term elements; and
- (ii) a second type of search result which references a second webpage that is, contrary to the search logic guidelines for AND operations published by the search engine provider, missing at least one search term element;

wherein the one or more servers provide the search results webpage via the Internet for displaying the plurality of search results on a display screen of the user-operated computing device;

wherein the first type of search result is displayed as a first search result grouping and the second type of search result is displayed as a second search result grouping;

wherein the first search result grouping is comprised of one or more of: a title for the first webpage, an Internet link for the first webpage, an excerpt of the first webpage, or a URL for the first webpage; and wherein each first search result grouping does not include an annotation indicating one or more missing search term elements in the first webpage;

wherein the second search result grouping is comprised of a missing search term annotation and one or more of: a title for the second webpage, an Internet link for the

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second webpage, an excerpt of the second webpage, or a URL for the second webpage;  
 wherein the missing search term annotation is comprised of a text representing at least one search term element missing in the second webpage;  
 wherein the missing search term annotation is placed on the display screen at the bottom of the second search result grouping;  
 wherein the display screen displays one or more selectable advertisements on the search results webpage, where the one or more selectable advertisements are related to one or more of the search term elements;  
 wherein a third type of search result references a third webpage that is missing at least one search term element, and wherein a descendant webpage linked directly one level from the third webpage contains the at least one missing search term element;  
 wherein a fourth type of search result references a fourth webpage that is missing at least one search term element, and wherein all descendant webpages linked directly one level from the fourth webpage are also missing the at least one search term element;  
 wherein the display screen displays the fourth type of search result in a same manner as the second search result grouping; and  
 wherein any missing search term annotation enables the user to readily discern, without opening its associated referenced webpage and navigating away from the search results webpage, that the associated referenced webpage is missing the at least one search term element, and by not opening the respective referenced webpage a faster execution is enabled for the Internet search process.

**18.** The system of claim **17** wherein each missing search term annotation comprises text representing at least one search term element in at least one of the following formats:

- (i) a font representing the text has been altered;
- (ii) the text is shown with one or more lines merged with the text;
- (iii) the text is shown with one or more lines superimposed thereupon;
- (iv) the text is shown within a shaded area; and
- (v) the text is shown with a reversed format.

**19.** A method for advertising in conjunction with Internet search, wherein one or more advertisements related to submitted search term elements are placed on a search results webpage even though some search results displayed on that webpage reference a corresponding webpage that does not contain all the submitted search term elements, the method comprising:

receiving at a server at a first location, a first search request submitted via the Internet from an interactive graphical user interface on a user-operated computing device at a second location, the first search request comprising one or more search term elements for performing AND operations according to search logic guidelines published by the search engine provider;

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performing an Internet search to produce one or more search results, each search result referencing a webpage, wherein the one or more search results includes a first search result referencing a first webpage that is, contrary to the guidelines for AND operations published by the search engine provider, missing one or more of the search term elements in the first webpage; transmitting to the computing device via the Internet, a first search results webpage comprising the one or more search results, the first search results webpage being displayed on the interactive graphical user interface on the computing device's display screen;  
 wherein the first search result is displayed as a first search result grouping;  
 wherein the first search result grouping is comprised of a missing search term annotation and one or more of: a title for the first webpage, an Internet link for the first webpage, an excerpt of the first webpage, or a URL for the first webpage;  
 wherein the missing search term annotation is comprised of a text representing at least one search term element missing in the first webpage;  
 wherein the annotation is located on the display at the bottom of the first search result grouping;  
 wherein the first search results webpage also comprises one or more selectable advertisements related to one or more of the search term elements; and  
 wherein the annotation warns the user that one or more search term elements are missing on the first webpage, and that not selecting the first search result will speed the Internet search process by reducing wasted time.

**20.** The method of claim **19**, wherein the one or more search results further includes:

- (i) a second search result which references a second webpage that is missing at least one search term element, wherein a descendant webpage linked directly one level from the second webpage contains the at least one missing search term element; and
- (ii) a third search result which references a third webpage that is missing at least one search term element, wherein all descendant webpages linked directly one level from the third webpage are also missing the at least one search term element; and further comprising: causing the display screen to display the third search result in a same manner as the first search result grouping.

**21.** The method of claim **19**, wherein the display screen displays, in combination with the annotation within the first search result grouping, a selectable filtering function that, when selected, automatically causes the first search result grouping to be removed from the search results webpage.

**22.** The method of claim **21**, wherein the user-operated computing device is a smart phone with a smaller display screen than a laptop, desktop, notebook, or tablet computer's display screen, and wherein the automatic removal of the first search result grouping enables the smaller display screen to display an increased number of first type of search results.

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